

National Bureau of Standards

AUG 21 1947

IONOSPHERIC DATA ON FILE AT IRPL

This report is a convenient index of all ionospheric data on file in the offices of IRPL as of 1 January 1946. Unless otherwise indicated, solid lines represent daily-hourly tabulations. Broken lines, in general, represent provisional data for which final tabulations are expected. However, when solid and broken lines appear in the same month, the broken lines represent provisional data for which no daily-hourly tabulations are expected. The report can be kept up-to-date by extending the lines on the basis of the ionospheric data presented monthly in the IRPL-F series reports "Ionospheric Data".

Summaries of data on file at IRPL, with few exceptions, consist of average values through December 1944, and of median values wherever that is possible from January 1945 to date. Where values available are averages only, that fact is indicated.

All distances in the muf and M values are in kilometers unless otherwise noted.

The index has been arranged for breaking up into loose-leaf form or into separate sheets for convenient filing. Eight blank pages are included for indexing local data and for keeping additional records.

The following list of stations is covered by the index.

Adak, Alaska	51.9°N, 176.6°W
Alma Ata, U.S.S.R.	43.5°N, 76.5°E
Athens, Greece	38.1°N, 23.9°E
Bad Voeslau, Germany	47.9°N, 16.2°E
Baton Rouge, Louisiana	30.5°N, 91.2°W
Bombay, India	19.0°N, 73.0°E
Boston, Massachusetts	42.4°N, 71.2°W
Brisbane, Australia	27.5°S, 153.0°E
Bukhta Tikhaya, U.S.S.R.	80.3°N, 52.8°E
Burghead, Scotland	57.7°N, 3.5°W
Cairo, Egypt	30.0°N, 31.2°E
Campbell Island	52.5°S, 169.2°E
Canberra, Australia	35.3°S, 149.0°E
Capetown, Union of S. Africa	33.9°S, 18.7°E
Cape York, Australia	11.0°S, 142.4°E
Christchurch, N.Z.	43.5°S, 172.6°E
Christmas Island	1.9°N, 157.3°W

(over)

Chungking, China	29.4°N, 106.8°E
Churchill, Canada	58.8°N, 94.2°W
Clyde, Baffin Island	70.5°N, 68.6°W
Colombo, Ceylon	6.6°N, 80.0°E
Deal, New Jersey	74.0°N, 40.2°W
Delhi, India	28.6°N, 77.2°E
Fairbanks, Alaska	64.9°N, 147.8°W
Great Baddow, England	51.7°N, 0.5°E
Guam Island	13.5°N, 144.8°E
Hobart, Tasmania	43.0°S, 147.3°E
Hollandia, New Guinea	3.0°S, 140.0°E
Honshu, Japan	35.3°N, 135.0°E
Huancayo, Peru	12.0°S, 75.3°W
Kermadec Islands	29.2°S, 177.9°W
Kochel, Germany	47.7°N, 11.4°E
Kwajalein Atoll	9.0°N, 168.0°E
Leningrad, U.S.S.R.	59.7°N, 30.5°E
Leyte, Philippine Islands	11.0°N, 125.0°E
Loshan, China	29.5°N, 103.7°E
Madras, India	13.0°N, 80.2°E
Maui, Hawaii	20.8°N, 156.5°W
Moscow, U.S.S.R.	55.8°N, 37.6°E
Oslo, Norway	59.9°N, 11.0°E
Ottawa, Canada	45.5°N, 75.8°W
Palau Islands	25.0°S, 130.0°W
Peshawar, India	34.0°N, 71.5°E
Pitcairn Island	25.0°S, 130.0°W
Prince Rupert, Canada	54.3°N, 130.3°W
Rarotonga Island	21.4°S, 159.6°W
Reykjavik, Iceland	64.1°N, 21.7°W
St. Johns, Newfoundland	47.7°N, 52.7°W
Sakhalin Island	46.9°N, 143.0°E
San Francisco, California	37.4°N, 122.2°W
San Juan, Puerto Rico	18.4°N, 66.1°W
Slough, England	51.5°N, 0.6°W
Slutsk, U.S.S.R.	59.7°N, 30.5°E
Snainton, England	54.2°N, 0.6°W
Spitsbergen, Norway	78.2°N, 15.6°E
Sverdlovsk, U.S.S.R.	56.7°N, 61.1°E
Syracuse, Sicily	37.1°N, 15.2°E
Tokyo, Japan	35.6°N, 139.6°E
Tomsk, U.S.S.R.	56.4°N, 85.0°E
Trinidad, Brit.W. Indies	10.6°N, 61.2°W
Tromso, Norway	69.6°N, 19.0°E
Victoria Beach, Canada	50.8°N, 96.5°W
Washington, D.C.	39.0°N, 77.5°W
Watheroo, W. Australia	30.3°S, 115.9°E
Wuchang, China	30.6°N, 114.4°E

IONOSPHERIC DATA RECORD

Adak, Alaska
(51.9°N, 176.6°W)

1945

19

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																					
f°F ₁																																					
f°E																																					
f°E ₂																																					
fE _s																																					
fE _{2s}																																					
f°E _s																																					
(f°F ₂) ²																																					
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f ^A E																																					
f _{min}																																					
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
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M3500																																					
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M																																					
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* F ₂ M3000																																					
* F ₂ M4000																																					
h'F ₂																																					
h'F ₁																																					
h'E																																					
h'E ₂																																					
h'E _s																																					
h'E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					
* Calculated by IRPL																																					

©Data began Oct. 8, 1945.

Alma Ata, U.S.S.R.
(43.5°N, 76.5°E)

卒

19

19

*Monthly averages by mail.

Athens, Greece
(38.1°N, 23.9°E)

IONOSPHERIC DATA RECORD

1943

*

1944

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f _{min}																								
F muf																								
F muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
M3000																								
M																								
M																								
M																								
* F ₂ M3000																								
* F ₂ M4000																								
K _{F2}																								
K _{F1}																								
K _E																								
K _{E2}																								
K _{E_s}																								
K _{E_{2s}}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								
* Calculated by (RPL																								

*December 1943, 13 to 31 only.
Part of a U.S. Army Intelligence Report.

Baton Rouge, Louisiana
(30.5°N, 91.2°W)

IONOSPHERIC DATA RECORD

(30.5°N, 91.2°W)		1943												1944												1945											
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D												
f°F ₂																																					
f°F ₁																																					
f°E																																					
f°E ₂																																					
fE _s																																					
fE _{2s}																																					
f ^b E _s																																					
(f°F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f ^{min}																																					

* Calculated by IRPL

* July 1943, ½ month only.

August 1944, ½ month only.

June 1945, no data taken.

IONOSPHERIC DATA RECORD

1945

19

69

[illegible]

Monthly averages only.

IONOSPHERIC DATA RECORD

9

—

45

24

10

 $\overline{r^2} =$

175

FE28

DES

$$\underline{(f^0 F_2)^2}$$
$$\frac{1}{2}F_2$$
 $f^2 F_1$

FE

152572

F muf

F. muf

2. *mut*

F muf

F muf

F muf

Einf

M 3500

F2-M3000

W2-M 1500

72-113000

* F2 M3C00

* F₂ M4000

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S

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NE

18

22

1990

100

NOTE

I

Absorption

* Calculated by IRPL

657)

Brisbane, Australia
(27.5°S, 153.0°E)

IONOSPHERIC DATA RECORD

1943

1944

1945

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f°F₂

f°F₁

f°E

f°E₂

fE_s

fE_{2s}

f^bE_s

(f°F₂)²

f^xF₂

f^xF₁

f^xE

f_{min}

half hourly f°F₂

f₃₀₀₀F₂

f_{min}

f₃₀₀₀MUF

MUF

MUF

MUF

MUF

MUF

MUF

M3000

F₂-M3000

F₂-M1500

F₁-M3000

M

F₁-M1500

E M1500

* F₂ M3000

* F₂ M4000

h'F₂

h'F₁

h'E

h'E₂

h'E_s

h'E_{2s}

h^mF₂

h^mF₁

h^mE

half hourly h'F₂

I

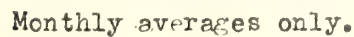
Absorption

* Calculated by IRPL

bukhta Tikhaya,
(56.3°N, 52.8°E)

1945

19



Bukhta Tikhaya, U.S.S.R. IONOSPHERIC DATA RECORD
(80.3°N, 52.8°E)

1942

1941

[illegible]

Bukhta Tikhaya, U.S.S.R.
(80.3°N, 52.8°E)

1938

1939

1940

[illegible]

Burghead, Scotland
(57.7°N, 3.5°W)

IONOSPHERIC DATA RECORD

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^h F ₂																								
f ^h F ₁																								
f ^h E																								
f ^{min}																								

F muf
F muf
F muf
F muf
F muf
F muf
E muf

M3500

M3000

M

M

M

* F₂ M3000

* F₂ M4000

h'F₂

h'F₁

h'E

h'E₂

h'E_s

h'E_{2s}

h^mF₂

h^mF₁

h^mE

I

Absorption

* Calculated by IRPL

Final, monthly averages by mail. Prov., telephone.

Burghead, Scotland
(57.7°N, 3.5°W)

1944

[illegible]

IONOSPHERIC DATA RECORD

Cairo, Egypt
(30.0°N, 31.2°E)

1945

19

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																					
f°F ₁																																					
f°E																																					
f°E ₂																																					
fE _s																																					
fE _{2s}																																					
f ^b E _s																																					
(f°F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f _{min}																																					
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h'E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					

* Calculated by IRPL

Campbell I.
(52.5°S, 169.0°E)

IONOSPHERIC DATA RECORD

1944

1945

19

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f^oF₂

f^oF₁

f^oE

f^oE₂

fE_s

fE_{2s}

f^bE_s

(f^oF₂)²

f^uF₂

f^uF₁

f^uE

f^umin

F muf

F muf

F muf

F muf

F muf

F muf

E muf

M3500

M2-M3000

M

M

M

* F₂ M3000

* F₂ M4000

h^oF₂

h^oF₁

h^oE

h^oE₂

h^oE_s

h^oE_{2s}

h^mF₂

h^mF₁

h^mE

I

Absorption

* Calculated by IRPL

IONOSPHERIC DATA RECORD

1945

19

1971												1972												
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																								
$f^{\circ}F_1$																								
$f^{\circ}E$																								
$f^{\circ}E_2$																								
fE_s																								
fE_{2s}																								
f^bE_s																								
$(f^{\circ}F_2)^2$																								
f^xF_2																								
f^xF_1																								
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f^{min}																								
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$h'F_2$																								
$h'F_1$																								
$h'E$																								
$h'E_2$																								
$h'E_s$																								
$h'E_{2s}$																								
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h^mF_1																								
h^mE																								
$\frac{1}{2}$ hourly h'/F_2																								
I																								
Absorption																								
* Calculated by IRPL																								

Canberra, Australia
(35.3°S, 149.0°)

1942

1943

[illegible]

Capetown, Union of S. Africa (33.9°S, 18.7°E)

IONOSPHERIC DATA RECORD

1944

1945

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																					
f°F ₁																																					
f°E																																					
f°E ₂																																					
fE _s																																					
fE _{2s}																																					
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(f°F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f _{min}																																					
Extent of E																																					

IONOSPHERIC DATA RECORD

Cape York, Australia
(11.0°S, 142.4°E)

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f°E _s																								
(f°F ₂) ²																								
f°F ₂																								
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h E _s																								
h E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								
* Calculated by IRPL																								

Monthly averages only to July 1945.

Christchurch, N. Z.
(43.5°S, 172.6°E)

19

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D		
	$f^{\circ}F_2$																										
	$f^{\circ}F_1$																										
	$f^{\circ}E$																										
	$f^{\circ}E_2$																										
	fE_s																										
	fE_{2s}																										
	f^bE_s																										
	$(f^{\circ}F_2)^2$																										
	f^xF_2																										
	f^xF_1																										
	f^xE																										
	f_{min}																										
F	muf																										
F	muf																										
F	muf																										
F	muf																										
F	muf																										
F	muf																										
E	muf																										
	M3500																										
	M3000																										
	M																										
	M																										
	M																										
*	F_2 M3000																										
*	F_2 M4000																										
	$h'F_2$																										
	$h'F_1$																										
	$h'E$																										
	$h'E_2$																										
	$h'E_s$																										
	$h'E_{2s}$																										
	h^mF_2																										
	h^mF_1																										
	h^mE																										
	I																										
	Absorption																										

Christchurch, N. Z.
(43.5°S, 171.2°E)

IONOSPHERIC DATA RECORD

1942

1943

1944

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f^oF_2																								
f^oF_1																								
f^oE																								
f^oE_2																								
fE_s																								
fE_{2s}																								
f^bE_s																								
$(f^oF_2)^2$																								
$f^x F_2$																								
$f^x F_1$																								
$f^x E$																								
f_{min}																								

muf
muf
muf
muf
muf
muf
muf

M3500

M3000

M

M

M

* F_2 M3000

* F_2 M4000

$h'F_2$

$h'F_1$

$h'E$

$h'E_2$

$h'E_s$

$h'E_{2s}$

h^mF_2

h^mF_1

h^mE

I

Absorption

* Calculated by IRPL

*All data through July 1942, monthly averages.

After July 1942, values from daily-hourly tabulations.

IONOSPHERIC DATA RECORD

Christchurch, N. Z.
(43.5°S, 172.6°E)

1939 *

1940 *

1941 *

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f ^o F ₂																																					
f ^o F ₁																																					
f ^o E																																					
f ^o E ₂																																					
fE _s																																					
fE _{2s}																																					
f ^b E _s																																					
(f ^o F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f _{min}																																					
F	muf																																				
F	muf																																				
F	muf																																				
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F	muf																																				
F	muf																																				
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M3500																																					
M3000																																					
M																																					
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M																																					
* F ₂ M3000																																					
* F ₂ M4000																																					
K F ₂																																					
K F ₁																																					
K E																																					
K E ₂																																					
K E _s																																					
K E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					
* Calculated by IRPL																																					

*All data from Jan. 1939 through
July 1942 monthly averages.

IONOSPHERIC DATA RECORD

Christchurch, N.Z.
(43.5°S, 172.6°E)

19

1937*

1938*

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f_oF₂
f_oF₁
f_oE
f_oE₂
fE_s
fE_{2s}
f_oE_s
(f_oF₂)₂
f_oF₂
f_oF₁
f_oE
f_{min}

F muf
F muf
F muf
F muf
F muf
F muf
E muf

M3000
M3000

M
M
M

* F₂ 1000
* F₂ 1000

h_pF₂
h_pF₁
h_pE
h_pE₂
h_pE_s
h_pE_{2s}
h_pF₂
h_pF₁
h_pE

I

Absorption

* Calculated by IRPL

*All data through July 1942 monthly averages.

IONOSPHERIC DATA RECORD

Christmas I.
(1.9°N, 157.3°W)

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f _{min}																								
F ₂ 3000muf																								
F muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
M3000																								
M																								
M																								
M																								
* F ₂ M3000																								
* F ₂ M4000																								
h'F ₂																								
h'F ₁																								
h'E																								
h'E ₂																								
h'E _s																								
h'E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								

* Calculated by IRPL

Chungking, China
(29.4°N, 106.8°E)

19

19

of occurrence B.

Churchill, Canada
(58.8°N, 94.2°W)

1945

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																								
$f^{\circ}F_1$																								
$f^{\circ}E$																								
$f^{\circ}E_2$																								
fE_s																								
fE_{2s}																								
f^bE_s																								
$(f^{\circ}F_2)^2$																								
f^xF_2																								
f^xF_1																								
f^xE																								
f^{min}																								
$f^{\circ}E_{2s}$																								
F_2 3500muf																								
F muf																								
F muf																								
F muf																								
F_1 3000muf																								
F muf																								
E 1500muf																								
M3500																								
F_2 -M3000																								
F_1 M1500																								
F_1 -M 3000																								
E M 1500																								
* F_2 M3000																								
* F_2 M4000																								
$h'F_2$																								
$h'F_1$																								
$h'E$																								
$h'E_2$																								
$h'E_s$																								
$h'E_{2s}$																								
h^mF_2																								
h^mF_1																								
h^mE																								
WWV Reception																								
I																								
Absorption																								
Aurora																								
* Calculated by IRPL																								

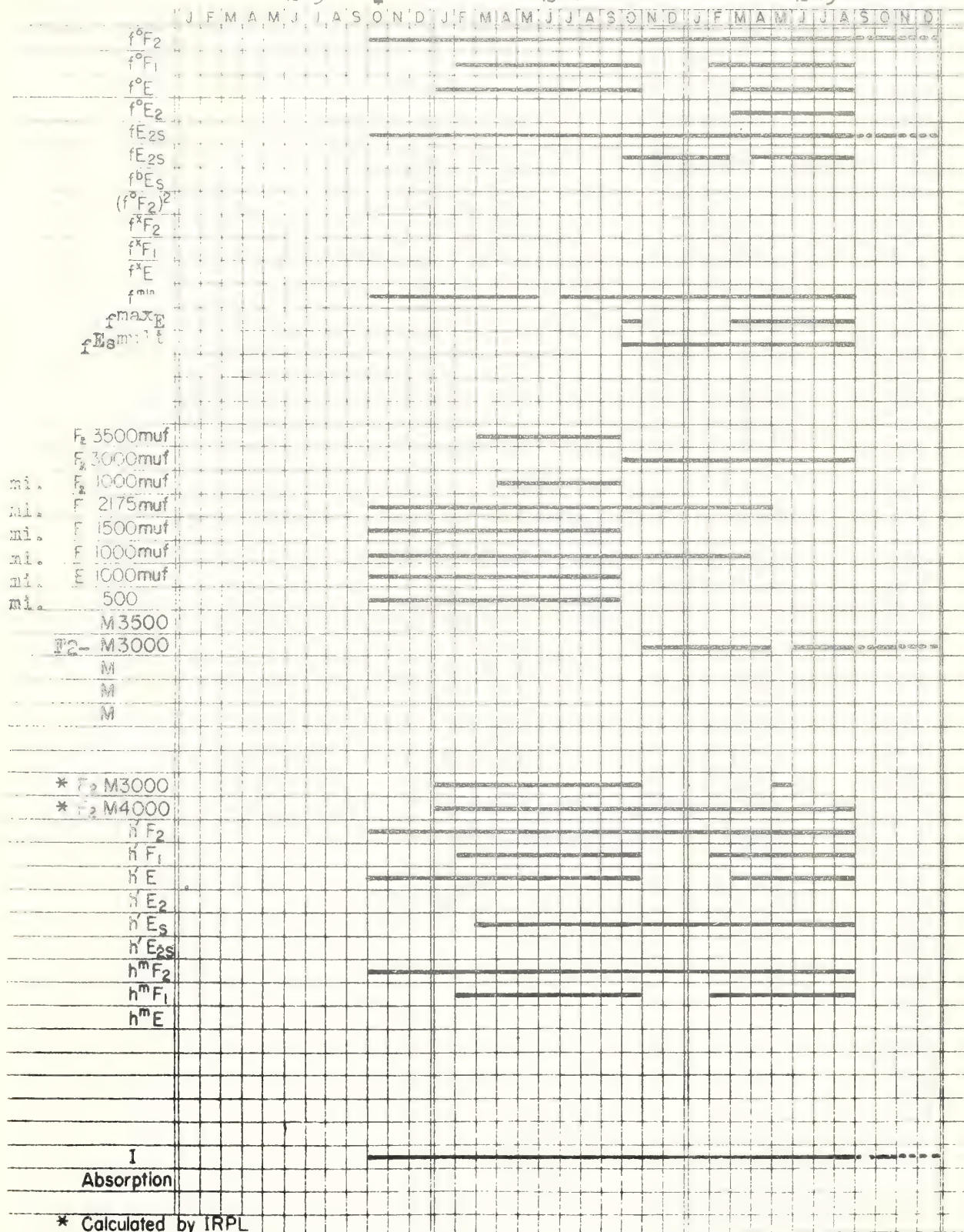
IONOSPHERIC DATA RECORD

Clyde, Baffin I.
(70.5°N, 68.6°W)

1943

1944

1945



*Oct. 1943, 8 days only.

IONOSPHERIC DATA RECORD

19

[illegible]

Deal, New Jersey
40.2°N, 74°W

19

19

[illegible]

Delhi, India
(28.6°N, 77.2°E)

1942

1943

1944

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
f ^o F ₂																																					
f ^o F ₁																																					
f ^o E																																					
f ^o E ₂																																					
fE _s																																					
fE _{2s}																																					
f ^b E _s																																					
(f ^o F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f ^m																																					
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
E	muf																																				
M3500																																					
M3000																																					
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M																																					
* F ₂ M3000																																					
* F ₂ M4000																																					
h F ₂																																					
h F ₁																																					
h E																																					
h E ₂																																					
h E ₃																																					
h E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					
* Calculated by IRPL																																					

IONOSPHERIC DATA RECORD

Delhi, India
(28.6°N, 77.2°E)

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂	-----																																			
f°F ₁																																				
f°E			--		----																															
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f _{min}																																				
F muf																																				
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F muf																																				
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F muf																																				
E muf																																				
F ₂ -M3500	-----																																			
F ₂ -M3000	-----																																			
F ₂ -M2500	-----																																			
F ₂ -M2000	-----																																			
F ₂ -M1500	-----																																			
F ₂ 1000	-----																																			
F ₂ 500	-----																																			
* F ₂ M3000																																				
* F ₂ M4000																																				
hF ₂																																				
hF ₁																																				
hE																																				
hE ₂																																				
hE _s																																				
hE _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
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hF ₂ at .83fF ₂																																				
hF ₂ at .9 fF ₂																																				
hF ₂ at .95fF ₂																																				
hF ₂ at .975fF ₂																																				
hF ₂ at .99fF ₂																																				
I																																				
Absorption																																				
* Calculated by IRP																																				

*Tabulations f°F₂ and hF₂

June 11 through June 21

July 11 through July 20

Aug. 13 through Aug. 20

Fairbanks, Alaska
(64.9°N, 147.8°W)

1945

19

[illegible]

Fairbanks, Alaska
(64.9°N, 147.8°W)

1942

1943

[illegible]

Great Baddow, England
(51.7°N, 0.5°E)

IONOSPHERIC DATA RECORD

1943

1944

1945

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																								
$f^{\circ}F_1$																								
$f^{\circ}E$																								
$f^{\circ}E_2$																								
fE_s																								
fE_{2s}																								
f^bE_s																								
$(f^{\circ}F_2)^2$																								
f^xF_2																								
f^xF_1																								
f^xE																								
f^{min}																								
F_2 3000muf																								
F_2 2500muf																								
F muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
F2-M3000																								
M																								
F1-M 3000																								
M																								
E M 1500																								
M 2500																								
* F_2 M3000																								
* F_2 M4000																								
$h'F_2$																								
$h'F_1$																								
$h'E$																								
$h'E_2$																								
$h'E_s$																								
$h'E_{2s}$																								
h^mF_2																								
h^mF_1																								
h^mE																								
I																								
Absorption																								
* Calculated by IRPL																								

IONOSPHERIC DATA RECORD

1941

1942

*Nov. 1940 through July 1944, read from graphs.
Monthly averages by mail through Dec. 1941.
Daily-hourly tabulations since Jan. 1942.

IONOSPHERIC DATA RECORD

Guam I.
(13.5°N, 144.8°E)

1944

1945

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f ^o F ₂													---												
f ^o F ₁													---												
f ^o E													---												
f ^o E ₂																									
fE _s													---												
fE _{2s}																									
f ^b E _s																									
(f ^o F ₂) ²																									
f ^x F ₂																									
f ^x F ₁																									
f ^x E																									
f _{min}																									
F	muf																								
F	muf																								
F	muf																								
F	muf																								
F	muf																								
E	muf																								
M3500																									
F2-M3000													---												
M																									
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M																									
* F ₂ M3000																									
* F ₂ M4000																									
h'F ₂													---												
h'F ₁													---												
h'E																									
h'E ₂																									
h'E _s																									
h'E _{2s}																									
h ^m F ₂																									
h ^m F ₁																									
h ^m E																									
I																									
Absorption																									

* Calculated by IRPL

*December 17 through January 6 only. Daily-hourly tabulations.

Hobart, Tasmania
(42.9°S, 147.3°E)

19

[illegible]

Hollandia, New Guinea
(3.0°N, 140.0°E)

IONOSPHERIC DATA RECORD

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂				—																				
f°F ₁				—																				
f°E				—																				
f°E ₂																								
fE _s																								
fE _{2s}				—																				
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f _{min}				—																				
F ₂ 3000muf				—																				
F muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
F ₂ -M3000				—																				
M																								
F ₂ -M 4000																								
M																								
* F ₂ M3000																								
* F ₂ M4000				—																				
h'F ₂				—																				
h'F ₁				—																				
h'E																								
h'E ₂																								
h'E _s																								
h'E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								
* Calculated by IRPL																								

*April 1 to May 15 only. Daily-hourly tabulations.

Honshu, Japan
(35.3°N, 135.0°E)

19

19

[illegible]

Graphs only.

Huancayo, Peru
(12.0°S, 75.3°W)

IONOSPHERIC DATA RECORD

1943

1944

1945

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f ^{min}																																				
F ₂ 3500muf																																				
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F ₂ 1000muf																																				
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F ₁ muf																																				
E muf																																				
M3500																																				
F ₂ -M3000																																				
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* F ₂ M3000																																				
* F ₂ M4000																																				
h'F ₂																																				
h'F ₁																																				
h'E																																				
h'E ₂																																				
h'E _s																																				
h'E _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
* Calculated by IRPL																																				

To July 1, 1940, Monthly averages only.
From July 1, 1940 daily-hourly tabulations.

Huancayo, Peru
(12.0°S, 75.3°W)

1942

To July 1, 1940, monthly averages only.
Since July 1, 1940, daily-hourly tabulations.

Since July 1, 1940, daily-hourly tabulations.

Huancayo, Peru
(12.0°S, 75.3°W)

1938

1939

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	f°F ₂																																				
	f°F ₁																																				
	f°E																																				
	f°E ₂																																				
	fE _s																																				
	fE _{2s}																																				
	f ^b E _s																																				
	(f°F ₂) ²																																				
	f ^A F ₂																																				
	f ^A F ₁																																				
	f ^A E																																				
	f ^{min}																																				

*Nov. 1937, 17 to 30 only.

To July 1, 1940, monthly averages only.

Since July 1, 1940 daily-hourly tabulations.

Huancayo, Peru
(12.0°S, 75.3°W)

1936

To July 1, 1940, monthly averages only.
Since July 1, 1940, daily-hourly tabulations.

Kermadec Is.
(29.2°S, 177.9°W)

154

165

* Calculated by IRPL

xApril 1943 through July 1943 and Jan. through April 1944, monthly averages only.
 +Nov. and Dec. 1943, and following April 1944, finals are daily-hourly tabulations.

Roche, Germany
(47.7°N, 11.4°E)

1915

007

Part of a U.S. Army Intelligence Report through March 1945, monthly averages,
August 1945, daily-hourly tabulations.

Rochele, Germany
(47.7°N., 11.4°E)

1943

Part of a U.S. Army Intelligence Report. Monthly Averages.

Kochel, Germany
(47.7°N, 11.4°E)

1939

1940

Part of a U.S. Army Intelligence Report. Monthly averages.

Nwajalein Atoll
(9.0°N, 168.0°E)

19

19

*From 2000 January 10 to 2300 January 27, 1945, daily-hourly tabulations.

IONOSPHERIC DATA RECORD

(59.7°N, 30.5°E)

1945

19

19

Monthly averages.



IONOSPHERIC DATA RECORD

Leyte, Philippine Is.
(11.0°N, 125.0°E)

1945

19

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																					
f°F ₁																																					
f°E																																					
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fE _s																																					
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f ^b E _s																																					
(f°F ₂) ²																																					
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f ^x E																																					
f ^{min}																																					
f ^{min} E _s																																					
F	muf																																				
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F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
E	muf																																				
M3500																																					
F ₂ -M3000																																					
M																																					
F ₁ -M3000																																					
M																																					
* F ₂ M3000																																					
* F ₂ M4000																																					
h'F ₂																																					
h'F ₁																																					
h'E																																					
h'E ₂																																					
h'E _s																																					
h'E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					

* Calculated by IRPL



Madras, India
(13.0°N, 80.2°E)

IONOSPHERIC DATA RECORD

1944

1945

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																									
f°F ₁																									
f°E																									
f°E ₂																									
fE _s																									
fE _{2s}																									
f ^b E _s																									
(f°F ₂) ²																									
f ^x F ₂																									
f ^x F ₁																									
f ^x E																									
min																									
F	muf																								
F	muf																								
F	muf																								
F	muf																								
F	muf																								
F	muf																								
E	muf																								
F2-M	3500																								
F2-M	3000																								
F2-M	2500																								
F2-M	2000																								
F2-M	1500																								
F2-M	1000																								
F2-M	500																								
* F ₂	M3000																								
* F ₂	M4000																								
h'F ₂																									
h'F ₁																									
h'E																									
h'E ₂																									
h'E _s																									
h'E _{2s}																									
h ^m F ₂																									
h ^m F ₁																									
h ^m E																									
I																									
Absorption																									
* Calculated by IRPL																									

Monthly averages only.

Maui, Hawaii
(20.8°N, 156.5°W)

19

WWV	Signal Strength			
* Calculated by IRPL				

IONOSPHERIC DATA RECORD

Under U.S.S.R.
(55.3°N, 37.0°E)

1944

1945

1946

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f_oF₂
f_oF₁
f_oE
fE₂
fE₁
fE₃
fE₄
fE₅
fE₆
fE₇
fE₈
fE₉
fE₁₀
fE₁₁
fE₁₂
fE₁₃
fE₁₄
fE₁₅
fE₁₆
fE₁₇
fE₁₈
fE₁₉
fE₂₀
fE₂₁
fE₂₂
fE₂₃
fE₂₄
fE₂₅
fE₂₆
fE₂₇
fE₂₈
fE₂₉
fE₃₀
fE₃₁
fE₃₂
fE₃₃
fE₃₄
fE₃₅
fE₃₆
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fE₃₈
fE₃₉
fE₄₀
fE₄₁
fE₄₂
fE₄₃
fE₄₄
fE₄₅
fE₄₆
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fE₄₈
fE₄₉
fE₅₀
fE₅₁
fE₅₂
fE₅₃
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fE₅₅
fE₅₆
fE₅₇
fE₅₈
fE₅₉
fE₆₀
fE₆₁
fE₆₂
fE₆₃
fE₆₄
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fE₆₆
fE₆₇
fE₆₈
fE₆₉
fE₇₀
fE₇₁
fE₇₂
fE₇₃
fE₇₄
fE₇₅
fE₇₆
fE₇₇
fE₇₈
fE₇₉
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fE₈₁
fE₈₂
fE₈₃
fE₈₄
fE₈₅
fE₈₆
fE₈₇
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fE₈₉
fE₉₀
fE₉₁
fE₉₂
fE₉₃
fE₉₄
fE₉₅
fE₉₆
fE₉₇
fE₉₈
fE₉₉
fE₁₀₀

muf
muf
muf
muf
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muf

M3500
F₂ M3000
M
M
M

* F₂ M3000
* F₂ M4000

h'F₂
h'F₁
h'E
h'E₂
h'E₁
h'E₃
h'E₄
h'E₅
h'E₆
h'E₇
h'E₈
h'E₉
h'E₁₀
h'E₁₁
h'E₁₂
h'E₁₃
h'E₁₄
h'E₁₅
h'E₁₆
h'E₁₇
h'E₁₈
h'E₁₉
h'E₂₀
h'E₂₁
h'E₂₂
h'E₂₃
h'E₂₄
h'E₂₅
h'E₂₆
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h'E₂₉
h'E₃₀
h'E₃₁
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h'E₄₉
h'E₅₀
h'E₅₁
h'E₅₂
h'E₅₃
h'E₅₄
h'E₅₅
h'E₅₆
h'E₅₇
h'E₅₈
h'E₅₉
h'E₆₀
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h'E₇₆
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h'E₇₈
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h'E₈₀
h'E₈₁
h'E₈₂
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h'E₈₇
h'E₈₈
h'E₈₉
h'E₉₀
h'E₉₁
h'E₉₂
h'E₉₃
h'E₉₄
h'E₉₅
h'E₉₆
h'E₉₇
h'E₉₈
h'E₉₉
h'E₁₀₀

Absorption

* Calculated by IRL

Monthly averages only.

IONOSPHERIC DATA RECORD

19

19

*June 1945, 0000 to 1130 only.
1945, Daily-hourly tabulations.

IONOSPHERIC DATA RECORD

Oslo, Norway
(59.9°N, 11.0°E)

1942

1943

1944

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	f°F ₂																																				
	f°F ₁																																				
	f°E																																				
	f°E ₂																																				
	fEs																																				
	fE ₂ s																																				
	f ^b Es																																				
	(f°F ₂) ²																																				
	f ^x F ₂																																				
	f ^x F ₁																																				
	f ^x E																																				
	f _{min}																																				
															</																						

* Calculated by IRPL

Sent. 1943, 16-30 only.
Oct. 1943, 16-31 only.
Nov. 1943, 1-15 only.

Apr. 1944, 1-15 only.
May 1944, 1-15 only.
Jun. 1944, 1-15 only.
Jul. 1944, 1-15 only.

Aug. 1944, 1-15 only.
Sep. 1944, 1-15 only.
Oct. 1944, 1-15 only.
Nov. 1944, 1-15 only.

Ottawa, Canada
(45.5°N, 75.8°W)

IONOSPHERIC DATA RECORD

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f ^{min}																																				
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E muf																																				
M3500																																				
F ₂ - M3000																																				
M																																				
F ₁ - M 3000																																				
M																																				
E M1500																																				
* F ₂ M3000																																				
* F ₂ M4000																																				
h' F ₂																																				
h' F ₁																																				
h' E																																				
h' E ₂																																				
h' E _s																																				
h' E _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
Aurora																																				

* Calculated by IRPL

IONOSPHERIC DATA RECORD

1944

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f _{min}																								
F ₂ 3500muf																								
F ₂ 3000muf																								
F ₂ 1500muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
F ₂ -M3000																								
F ₁ -M 3000																								
M																								
M																								
* F ₂ M3000																								
* F ₂ M4000																								
h'F ₂																								
h'F ₁																								
h'E																								
h'E ₂																								
h'E _s																								
h'E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
Aurora																								
I																								
Absorption																								
Reception WWV																								
* Calculated by IRPL																								

Palau Is.

1943

19

19

*Beginning with June data, station appears to have been moved to some point much farther North. Graphs only.

Peshawar, India
(34.0°N, 71.5°E)

19

19

[illegible]

IONOSPHERIC DATA RECORD

Pitcairn I.
(25.0°S, 130.0°W)

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																																				
$f^{\circ}F_1$																																				
$f^{\circ}E$																																				
$f^{\circ}E_2$																																				
fE_s																																				
fE_{2s}																																				
f^bE_s																																				
$(f^{\circ}F_2)^2$																																				
f^xF_2																																				
f^xF_1																																				
f^xE																																				
f_{min}																																				
F muf																																				
F muf																																				
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F muf																																				
F muf																																				
E muf																																				
M3500																																				
F2-M3000																																				
M																																				
M																																				
M																																				
* F2 M3000																																				
* F2 M4000																																				
$h^{\circ}F_2$																																				
$h^{\circ}F_1$																																				
$h^{\circ}E$																																				
$h^{\circ}E_2$																																				
$h^{\circ}E_s$																																				
$h^{\circ}E_{2s}$																																				
h^mF_2																																				
h^mF_1																																				
h^mE																																				
I																																				
Absorption																																				

* Calculated by IRPL

To May 31, 1945, monthly averages.
Since June 1, 1945, monthly medians.
Daily-hourly tabulations to come.

Prince Rupert, Canada
(54.3°N, 130.3°W)

19

[illegible]

IONOSPHERIC DATA RECORD

Rarotonga I.
(21.4°S, 159.6°W)

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																																				
$f^{\circ}F_1$																																				
$f^{\circ}E$																																				
$f^{\circ}E_2$																																				
fE_s																																				
fE_{2s}																																				
f^bE_s																																				
$(f^{\circ}F_2)^2$																																				
f^xF_2																																				
f^xF_1																																				
f^xE																																				
f_{min}																																				
$F_2 3000muf$																																				
F muf																																				
F muf																																				
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F muf																																				
F muf																																				
E muf																																				
M3500																																				
M3000																																				
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M																																				
* F_2 M3000																																				
* F_2 M4000																																				
$h'F_2$																																				
$h'F_1$																																				
$h'E$																																				
$h'E_2$																																				
$h'E_s$																																				
$h'E_{2s}$																																				
h^mF_2																																				
h^mF_1																																				
h^mE																																				
I																																				
Absorption																																				

* Calculated by IRPL

To May 31, 1945, monthly averages.
From June 1, 1945, monthly medians.
Daily-hourly tabulations to come.

Reykjavik, Iceland
(64.1°N, 21.7°W)

IONOSPHERIC DATA RECORD

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f ^{min}																								
f ₂ 3500 muf																								
f ₂ 3000 muf																								
f ₂ 1500 muf																								
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F muf																								
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* F ₂ M3000																								
* F ₂ M4000																								
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h'F ₁																								
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h'E ₂																								
h'E _s																								
h'E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
Blackouts																								
Partial Blackouts																								
I																								
Absorption																								
* Calculated by IRPL																								

St. John's, Newfoundland
(47.7°N, 52.7°W)

19

19

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D		
	$f^{\circ}F_2$																										
	$f^{\circ}F_1$																										
	$f^{\circ}E$																										
	$f^{\circ}E_2$																										
	fE_s																										
	fE_{2s}																										
	f^bE_s																										
	$(f^{\circ}F_2)^2$																										
	f^xF_2																										
	f^xF_1																										
	f^xE																										
	f^{min}																										
F	muf																										
F	muf																										
F	muf																										
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F	muf																										
F	muf																										
E	muf																										
	M3500																										
F2-M3000																											
	M																										
F1-M3000																											
E M1500																											
*	F2 M3000																										
*	F2 M4000																										
	$h'F_2$																										
	$h'F_1$																										
	$h'E$																										
	$h'E_2$																										
	$h'E_s$																										
	$h'E_{2s}$																										
	h^mF_2																										
	h^mF_1																										
	h^mE																										
	I																										
	Absorption																										
	Aurora																										
* Calculated by IRPL																											

Sakhalin I.
(143.0°E, 46.9°N)

1943

19

19

[illegible]

• Graphs only.

San Francisco, California **IONOSPHERIC DATA RECORD**
(37.4°N, 122.2°W)

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
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f ^h F ₁																																				
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F ₂ -M1500																																				
F ₁ -M3000																																				
M _i																																				
* F ₂ M3000																																				
* F ₂ M4000																																				
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h ^m F ₂																																				
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h ^m E																																				
I																																				
Absorption																																				

* Calculated by IRPL

IONOSPHERIC DATA RECORD

San Juan, Puerto Rico
(18.4°N, 66.1°W)

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f ^{min}																								
F ₂ 3500muf																								
F ₂ 1500muf																								
F ₂ 3000muf																								
F muf																								
F ₁ 3000muf																								
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h' E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								
* Calculated by IRPL																								

*15 min. readings because of eclipse.

IONOSPHERIC DATA RECORD

1942

1943

[illegible]

Slough, England
(51.5°N, 0.6°W)

IONOSPHERIC DATA RECORD

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
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fE _s																																				
fE _{2s}																																				
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h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
* Calculated by IRPL																																				

* Monthly averages only.

Station, 21-2nd
(07.50^m, 0.60^W)

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ^o																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f _{min}																																				
h o ym																																				
ym/h o																																				
-log Pnepers																																				
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M3500																																				
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h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
* Calculated by IRPL																																				

IONOSPHERIC DATA RECORD

NOON VALUES

1943

1944

[illegible]

Slough, England
(51.50°N, 1.60°W)

IONOSPHERIC DATA RECORD NOON VALUES

1939

1940

1941

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f^oF₂

f^oF₁

f^oE

f^oE₂

fE_s

fE_{2s}

f_{min}

(f^oF₂)

f^oF₂

f_{min}

f^oE

f_{min}

F muf

F muf

F muf

F muf

F muf

F muf

E muf

M3500

M3000

M

M

M

* F₂ M3000

* F₂ M4000

h'F₂

h'F₁

h'E

h'E₂

h'E_s

h'E_{2s}

h^mF₂

h^mF₁

h^mE

I

Absorption

* Calculated by (RPL)

Slutsk, U.S.S.R.
(59.7°N, 30.5°E)

1940

1947

[illegible]

Snainton, England
(54.2°N, 0.6°W)

19

19

*Telephone data only.

Spitsbergen, Norway
(78.2°N, 15.6°E)

19

19

Monthly averages only.

IONOSPHERIC DATA RECORD

1945

19

*For all months f^{OT}2 daily-hourly tabulations. Others monthly averages.
 04 April 1944, noon f^{OT}2 and min f^{OT}2 for 20 days only.

IONOSPHERIC DATA RECORD

Syracuse, Sicily
(37.1°N, 15.2°E)

1942

1943

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
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f°F ₂																																				
f°F ₁																																				
f°E																																				
f _{min}																																				
															</																					

* Calculated by IRPL

Part of a U.S. Army Intelligence Report.

Jan. 1942, 16-31 only.

July 1942, 1-11 only.

Sept. 1942, 1-15 only.

May 1943, 16-31 only.

IONOSPHERIC DATA RECORD

Month, Day, Year

1936

1937

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																																				
$f^{\circ}F_1$																																				
$f^{\circ}E$																																				
$f^{\circ}E_2$																																				
fE_s																																				
fE_{2s}																																				
f^bE_s																																				
$(f^{\circ}F_2)^2$																																				
f^xF_2																																				
f^xF_1																																				
f^xE																																				
f^{min}																																				

F muf
F muf
F muf
F muf
F muf
F muf
E muf

M3500

M3000

M

M

M

* F₂ M3000

* F₂ M4000

h'F₂

h'F₁

h'E

h'E₂

h'E_s

h'E_{2s}

h^mF₂

h^mF₁

h^mE

I

Absorption

* Calculated by IRPL

Monthly averages only.

IONOSPHERIC DATA RECORD

Tomsik, U.S.S.R.
(56.4°N, 85.0°E)

1943

1944

1945

daily pre-sunrise

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f _{min}																																				
f _{max} F ₂																																				
F muf																																				
F muf																																				
F muf																																				
F muf																																				
F muf																																				
F muf																																				
E muf																																				
M3500																																				
M3000																																				
M																																				
M																																				
M																																				
* F ₂ M3000																																				
* F ₂ M4000																																				
K F ₂																																				
K F ₁																																				
K E																																				
K E ₂																																				
K E _s																																				
K E _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
* Calculated by IRPL																																				

*Jan. through June 1944, daily-hourly tabulations f°F₂.
Other values, monthly averages.

Tomsk, U.S.S.R.
(56.4°N, 85.0°E)

1942

[illegible]

Tomsk, U.S.S.R.
(56.4°N, 85.0°E)

1938

1939

[illegible]

IONOSPHERIC DATA RECORD

Trinidad, Brit. West Indies
(10.6°N, 61.2°W)

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
f°F ₂	_____												_____												
f°F ₁	_____												_____												
f°E	_____												_____												
f°E ₂	_____												_____												
fE _s	_____												_____												
fE _{2s}	_____												_____												
f°E _s	_____												_____												
(f°F ₂) ²	_____												_____												
f ^λ F ₂	_____												_____												
f ^λ F ₁	_____												_____												
f ^λ E	_____												_____												
f _{min}	_____												_____												
f°"X"layer	_____												_____												
h/"X"layer	_____												_____												
F ₂ 3500muf	_____												_____												
F ₂ 3000muf	_____												_____												
(mi) F ₂ 1500muf	_____												_____												
(mi) F ₂ 1000muf	_____												_____												
(mi) F ₂ 500muf	_____												_____												
F muf	_____												_____												
(mi) E _s 1000muf	_____												_____												
F ₂ -M.3500	_____												_____												
F ₂ -M3000	_____												_____												
M	_____												_____												
(mi) F ₂ -M 1000	_____												_____												
M	_____												_____												
* F ₂ M3000	_____												_____												
* F ₂ M4000	_____												_____												
h'F ₂	_____												_____												
h'F ₁	_____												_____												
h'E	_____												_____												
h'E ₂	_____												_____												
h'E _s	_____												_____												
h'E _{2s}	_____												_____												
h ^m F ₂	_____												_____												
h ^m F ₁	_____												_____												
h ^m E	_____												_____												
I	_____												_____												
Absorption	_____												_____												
* Calculated by IRPL																									

X May 1945, 1 through 15 only.

Tromso, Norway.
(69.6°N, 19.0°E)

IONOSPHERIC DATA RECORD

1944

1945

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																								
f°F ₁																								
f°E																								
f°E ₂																								
fE _s																								
fE _{2s}																								
f ^b E _s																								
(f°F ₂) ²																								
f ^x F ₂																								
f ^x F ₁																								
f ^x E																								
f _{min}																								
F muf																								
F muf																								
F muf																								
F muf																								
F muf																								
F muf																								
E muf																								
M3500																								
M3000																								
M																								
M																								
M																								
* F ₂ M3000																								
* F ₂ M4000																								
h'F ₂																								
h'F ₁																								
h'E																								
h'E ₂																								
h'E _s																								
h'E _{2s}																								
h ^m F ₂																								
h ^m F ₁																								
h ^m E																								
I																								
Absorption																								
* Calculated by IRPL																								

1944 Part of a U.S. Army Intelligence Report.
All data monthly averages.

Tromsø, Norway.
(69.6°N, 19.0°E)

1942

1943

* Calculated by IRPL

Mar. 1942, 16-31 "

Aug. 1943, results erratic due to storms

Part of a U.S. Army Intelligence Report (through 1944).

IONOSPHERIC DATA RECORD

Victoria Beach, Canada
(50.8°N, 96.5°W)

1945

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f _{min}																																				
F muf																																				
F muf																																				
F muf																																				
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F muf																																				
F muf																																				
E muf																																				
M3500																																				
M3000																																				
M																																				
M																																				
M																																				
* F ₂ M3000																																				
* F ₂ M4000																																				
h' F ₂																																				
h' F ₁																																				
h' E																																				
h' E ₂																																				
h' E _s																																				
h' E _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				

* Calculated by IRPL

Washington, D. C.
(39.0°N, 77.5°W)

19

五

[illegible]

IONOSPHERIC DATA RECORD

1943

1944

(537)

IONOSPHERIC DATA RECORD

Washington, D. C.
(39.0°N, 77.5°W)

1939

1940

1941

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f°F ₂																																				
f°F ₁																																				
f°E																																				
f°E ₂																																				
fE _s																																				
fE _{2s}																																				
f ^b E _s																																				
(f°F ₂) ²																																				
f ^x F ₂																																				
f ^x F ₁																																				
f ^x E																																				
f _{min}																																				
1/2 hourly f°F ₂																																				
2 hourly f°E																																				
f _{max} .F ₂																																				
F ₂ 3500muf																																				
F ₂ 1500muf																																				
F muf																																				
F muf																																				
F muf																																				
F muf																																				
E muf																																				
M3500																																				
M3000																																				
M																																				
M																																				
M																																				
* F ₂ M3000																																				
* F ₂ M4000																																				
h'F ₂																																				
h'F ₁																																				
h'E																																				
h'E ₂																																				
h'E _s																																				
h'E _{2s}																																				
h ^m F ₂																																				
h ^m F ₁																																				
h ^m E																																				
I																																				
Absorption																																				
* Calculated by IRPL																																				

* Calculated by IRPL

Washington, D. C.
(39.0°N, 77.5°W)

Washington, D. C.
(39.0°N, 77.5°W)

1936

1937

1938

[illegible]

Washington, D. C.
(39.00N, 77.50W)

IONOSPHERIC DATA RECORD

1933

1934

1935

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

f^oF_2

f^oF_1

f^oE

f^oE_2

fE_s

fE_{2s}

f^bE_s

$(f^oF_2)^2$

f^xF_2

f^xF_1

f^xE

f_{min}

F muf

F muf

F muf

F muf

F muf

F muf

E muf

M3500

M3000

M

M

M

* F_2 M3000

* F_2 M4000

$h'F_2$

$h'F_1$

$h'E$

$h'E_2$

$h'E_s$

$h'E_{2s}$

h^mF_2

h^mF_1

h^mE

I

Absorption

* Calculated by IRPL

(Lat. 30.3°S , 115.9°E)

1945

19

* Calculated by IRPL

IONOSPHERIC DATA RECORD

Watheroo, W. Australia
(30.3°S, 115.9°E)

1942

1941

1942

1943

[illegible]

Watheroo, W. Australia
(30.3°S, 115.9°E)

IONOSPHERIC DATA RECORD

1938

1939

		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
f ^o F ₂																																					
f ^o F ₁																																					
f ^o E																																					
f ^o E ₂																																					
fE _s																																					
fE _{2s}																																					
f ^b E _s																																					
(f ^o F ₂) ²																																					
f ^x F ₂																																					
f ^x F ₁																																					
f ^x E																																					
f _{min}																																					
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
F	muf																																				
E	muf																																				
M3500																																					
M3000																																					
M																																					
M																																					
M																																					
* F ₂ M3000																																					
* F ₂ M4000																																					
h'F ₂																																					
h'F ₁																																					
h'E																																					
h'E ₂																																					
h'E _s																																					
h'E _{2s}																																					
h ^m F ₂																																					
h ^m F ₁																																					
h ^m E																																					
I																																					
Absorption																																					

* Calculated by IRPL

To July 1, 1940, monthly averages only.
Since July 1, 1940, daily-hourly tabulations.

IONOSPHERIC DATA RECORD

1936

1937

*To July 1940, monthly averages only.

IONOSPHERIC DATA RECORD

1937

1938

1939

[illegible]

*Oct. 4, 1937 through Jan. 23, 1938.
Apr. 25, 1938, through June 16, 1938.

Noon and irregular evening runs.

STATION _____

IONOSPHERIC DATA RECORD

LAT. _____

19

19

19

LONG. _____

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

 $f^{\circ}F_2$ $f^{\circ}F_1$ $f^{\circ}E$ $f^{\circ}E_2$ $f^{\circ}E_s$ $f^b E_s$ $(f^{\circ}F_2)^2$ $f^x F_2$ $f^x F_1$ $f^x E$ $f^{\max} F_2$ $f^{\max} F_1$ f^{\min} F_2 muf F_2 muf F_2 muf F_2 muf F_1 muf F_1 muf E muf F_2 M3500 F_2 M3000 F_2 M1500 F_1 M F_1 M $h' F_2$ $h' F_1$ $h' E$ $h' E_2$ $h' E_s$ $h' E_{gs}$ $h^m F_2$ $h^m F_1$ $h^{\tan} F_2$ $h^{\tan} F_1$

I

Absorption

STATION _____
 LAT. _____
 LONG. _____

IONOSPHERIC DATA RECORD

19

19

19

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

$f^{\circ}F_2$

$f^{\circ}F_1$

$f^{\circ}E$

$f^{\circ}E_2$

$f^{\circ}E_s$

$f^b E_s$

$(f^{\circ}F_2)^2$

$f^x F_2$

$f^x F_1$

$f^x E$

$f^{max} F_2$

$f^{max} F_1$

f^{min}

F_2 muf

F_2 muf

F_2 muf

F_2 muf

F_1 muf

F_1 muf

E muf

F_2 M3500

F_2 M3000

F_2 M1500

F_1 M

F_1 M

$h F_2$

$h F_1$

$h E$

$h E_2$

$h E_s$

$h E_{2s}$

$h^m F_2$

$h^m F_1$

$h^{\tan} F_2$

$h^{\tan} F_1$

I

Absorption

IONOSPHERIC DATA RECORD

LAT. _____

19

19

19

LONG.

[illegible]

IONOSPHERIC DATA RECORD

LAT. _____

19

19

19

LONG. _____

[illegible]

STATION _____

IONOSPHERIC DATA RECORD

LAT. _____

19

19

19

LONG. _____

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

 $f^{\circ}F_2$ $f^{\circ}F_1$ $f^{\circ}E$ $f^{\circ}E_2$ $f^{\circ}E_3$ f^bE_3 $(f^{\circ}F_2)^2$ $f^X F_2$ $f^X F_1$ $f^X E$ $f^{\max} F_2$ $f^{\max} F_1$ f^{\min} F_2 muf F_2 muf F_2 muf F_2 muf F_1 muf F_1 muf E muf F_2 M3500 F_2 M3000 F_2 M1500 F_1 M F_1 M $h F_2$ $h F_1$ $h E$ $h E_2$ $h E_3$ $h E_{2s}$ $h^m F_2$ $h^m F_1$ $h^{\tan} F_2$ $h^{\tan} F_1$

I

Absorption

STATION _____
 LAT. _____
 LONG. _____

IONOSPHERIC DATA RECORD

19

19

19

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

$f^{\circ}F_2$

$f^{\circ}F_1$

$f^{\circ}E$

$f^{\circ}E_2$

$f^{\circ}E_3$

$f^b E_3$

$(f^{\circ}F_2)^2$

$f^x F_2$

$f^x F_1$

$f^x E$

$f^{max} F_2$

$f^{max} F_1$

f^{min}

F_2 muf

F_2 muf

F_2 muf

F_2 muf

F_1 muf

F_1 muf

E muf

F_2 M3500

F_2 M3000

F_2 M1500

F_1 M

F_1 M

$h' F_2$

$h' F_1$

$h' E$

$h' E_2$

$h' E_3$

$h' E_{23}$

$h^m F_2$

$h^m F_1$

$h^{tan} F_2$

$h^{tan} F_1$

I

Absorption

STATION _____
 LAT. _____
 LONG. _____

IONOSPHERIC DATA RECORD

19

19

19

	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
$f^{\circ}F_2$																																				
$f^{\circ}F_1$																																				
$f^{\circ}E$																																				
$f^{\circ}E_2$																																				
$f^{\circ}E_s$																																				
$f^{\circ}E_{2s}$																																				
$(f^{\circ}F_2)^2$																																				
$f^x F_2$																																				
$f^x F_1$																																				
$f^x E$																																				
$f^{\max} F_2$																																				
$f^{\max} F_1$																																				
f^{\min}																																				
F_2 muf																																				
F_2 muf																																				
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F_2 muf																																				
F_1 muf																																				
F_1 muf																																				
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F_2 M3500																																				
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$h F_2$																																				
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$h E$																																				
$h E_2$																																				
$h E_s$																																				
$h E_{2s}$																																				
$h^m F_2$																																				
$h^m F_1$																																				
$h^{\tan} F_2$																																				
$h^{\tan} F_1$																																				
I																																				
Absorption																																				

STATION _____
 LAT. _____
 LONG. _____

IONOSPHERIC DATA RECORD

19

19

19

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

$f^{\circ}F_2$
 $f^{\circ}F_1$
 $f^{\circ}E$
 $f^{\circ}E_2$
 $f^{\circ}E_3$
 $f^b E_3$
 $(f^{\circ}F_2)^2$
 $f^X F_2$
 $f^X F_1$
 $f^X E$
 $f^{max} F_2$
 $f^{max} F_1$
 f^{min}

F_2 muf
 F_2 muf
 F_2 muf
 F_2 muf
 F_1 muf
 F_1 muf
 E muf

F_2 M3500
 F_2 M3000
 F_2 M1500
 F_1 M
 F_1 M

$h F_2$
 $h F_1$
 $h E$
 $h E_2$
 $h E_3$
 $h E_{2S}$
 $h^m F_2$
 $h^m F_1$
 $h^{tan} F_2$
 $h^{tan} F_1$

I
 Absorption

